

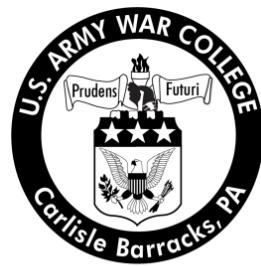
# Civilian Research Project

## Senior Service College Fellow

# Utilizing Integrative Medicine in the U.S. Army Medical Department

by

Lieutenant Colonel Scott A. Arcand  
United States Army National Guard



United States Army War College  
Class of 2012

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**UTILIZING INTEGRATIVE MEDICINE IN THE U.S. ARMY MEDICAL DEPARTMENT**

by

Lieutenant Colonel Scott A. Arcand  
United States Army National Guard

Mr. Joseph Vallone  
Project Adviser

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U.S. Army War College  
CARLISLE BARRACKS, PENNSYLVANIA 17013



## **ABSTRACT**

AUTHOR: LTC Scott A. Arcand

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## UTILIZING INTEGRATIVE MEDICINE IN THE U.S. ARMY MEDICAL DEPARTMENT

“Where there is no vision, the people perish:  
but he that keepeth the law, happy is he.”  
--Proverbs 29:18 (KJV)

“Restoring healing to medicine is like  
restoring justice to the law.”  
--Dean Ornish, MD<sup>1</sup>

### Introduction

The 2009 National Defense Authorization Act directed the Department of Defense (DoD) to conduct a study of pain management in wounded warriors, in order to identify problems with pain management and standardize policies and procedures across the services.<sup>2</sup> This responsibility fell to the then-Army Surgeon General, LTG Eric B. Schoomaker, who formed an interdisciplinary Pain Management Task Force that studied pain management not just in the Army, or even across the armed services, but within the DoD and the Department of Veterans' Affairs (DVA).<sup>3</sup> The Task Force studied pain management policies, procedures and techniques at multiple facilities, both DoD and DVA, and delivered its Final Report in May 2010. The Report made a number of recommendations, including a standardized pain taxonomy, an improved pain rating scale, standardization of pain management techniques and medications across facilities, but it also made one recommendation that was outside of what many would consider within the standard realm of military medicine: it recommended the use of Integrative Medicine (IM) techniques and procedures in the management of pain among wounded warriors.<sup>4</sup>

What is Integrative Medicine, and can it be used for more than pain management? This paper proposes answers to these questions and outlines a way ahead for the Army on this method of practicing medicine.

### What is Integrative Medicine?

In recent years, medicine in the United States has seen the growth of a movement—in patient self-therapies, patient requests to physicians, and physician practices as well<sup>5</sup>—which looks first not to conventional treatments and therapies, but toward those that are either historical (but may be considered outmoded) or come from a tradition other than the Western (but are nonetheless systematic). This first group can be considered “complementary” to traditional Western medicine (TWM<sup>6</sup>), such as diet and herbal therapy, or mind-body medicine, in that their efforts do not replace TWM as the primary therapy. This second group can be considered “alternative,” such as traditional Chinese medicine, or ayurvedic (Indian) medicine, since they offer a complete philosophy of health, disease and healing, but one that is distinct from TWM. Together, these groups are known as “complementary and alternative medicine” (CAM).<sup>7</sup>

Rather than completely replacing TWM practices with CAM, many practitioners are combining them in a hybrid known as Integrative Medicine (IM). This new approach considers the whole patient and his (her) environment (including family, work, social milieu) and gives providers a greater number of treatment options. The National Institutes of Health’s National Center for Complementary and Alternative Medicine defines it as: “ ‘Integrative medicine’ combines treatments from conventional medicine and CAM for which there is some high-quality evidence of safety and effectiveness. It is

also called integrated medicine.<sup>8</sup> This practice seeks to maximize patient outcomes by using each of these three modes to give a result that is greater than the sum of its parts.<sup>9 10</sup>

In February 2009, the Institute of Medicine (IOM), a division of the National Academies, sponsored a two-day symposium on IM in Washington, DC. In his opening remarks, the IOM President, Harvey V. Fineberg, MD, PhD, described Integrative Medicine by stating that, “Integrative medicine encompasses the whole spectrum of health care interventions from prevention to treatment to rehabilitation and recovery.”<sup>11</sup> But integrative medicine puts greater emphasis on prevention and preventive measures than TWM.

Within integrative medicine, prevention means participating in those behaviors and actions that foster health and wellness. This includes such actions as eating a healthy diet, having access to clean air and water, exercising on a regular basis, eliminating toxins from the home and work environments, and taking steps to reduce daily stress levels....Yet many chronic conditions are largely preventable and even reversible by making positive changes in personal behaviors.<sup>12</sup>

And while some authors have difficulty stating which are the modalities and therapies that IM encompasses, and there can be considerable variation in the therapies that individual providers use, these can be broadly categorized as: nutritional medicine (including dietary supplements), botanical medicine, lifestyle medicine, mind-body medicine, manual medicine, traditional Chinese medicine, and spirituality and health.<sup>13</sup>

What is the appeal of IM to the public? Why does the use of IM continue to grow in America?<sup>14</sup> The IOM’s 2005 Report, “Complementary and Alternative Medicine in the United States,”<sup>15</sup> provides a starting point by discussing “What Motivates People to Use CAM” in Chapter 2, “Prevalence, Cost, and Patterns of CAM Use.”<sup>16</sup> The authors note that while surveys may compile data on the general prevalence and usage of CAM,

They are far less useful as a means of providing information about people's motivations for using CAM therapies or modalities, given that rationale and rationalization are hard to tease apart on a survey and given that the reasons for using CAM use change over time, are complex, and are multidimensional.<sup>17</sup>

The reasons given for CAM usage are broad and varied, and include viewpoints such as: wanting to try something different, wellness promotion, reserving use of TWM modalities until needed, more patient-centered, and trying to understand or diagnose an illness better.<sup>18</sup> But one fact stands out from this chapter:

Kessler et al. (2001) found that 50 percent of all CAM therapy use that had been initiated at least 5 years prior to the interview (Eisenberg et al., 1998) persisted at the time of the interview. This suggests that prior use of CAM therapy is a predictor of ongoing or current use for half of all users. The data also suggest that the persistent use of CAM therapies and modalities may be related to general health and may not be reserved only for the treatment of a particular time-limited ailment.<sup>19</sup>

This statistic suggests that usage of CAM modalities (and therefore IM) has staying power with health care consumers, and is not just a passing trend.

What would justify the shift in medical practice with adopting IM, instead of allowing military medicine to remain solely within a TWM framework? Most importantly, because the health care system in America is failing to take care of our health, and the data are abundant. The United States spends approximately 16% of its Gross Domestic Product on healthcare—twice the amount spent by other developed nations<sup>20</sup> and up from 9% in 1980.<sup>21</sup> (At \$7,538 per capita, this amounts to just over \$30,000 per year for a family of four.) Moreover, health spending in the U.S. is growing at a rate twice that in other developed countries. Yet many of our health outcomes, including life expectancy at birth, low birth weight and infant mortality, mortality from heart disease, diabetes prevalence, and overall cancer incidence, are below average or near the bottom of this group of nations,<sup>22</sup> despite all of our advances in diagnostic studies, pharmacotherapy, surgery and cancer therapy. Patients feel more disconnected from

their health, and providers are frustrated with the assembly-line nature that clinical medicine is assuming.

...payers now dictate not only what treatments doctors can use but also how many patients they must see per hour and even which patients are “better” to attend to (because their conditions generate more revenue). Abbreviated visits have severely damaged the therapeutic relationship by eliminating the rewards it provided to both patients and doctors....Annual surveys by the Massachusetts Medical Society have shown that doctors’ levels of satisfaction with their profession have declined every year for thirteen years, almost entirely because of insurance and administrative problems.<sup>23</sup>

Moreover, regions of the country that spend more money per patient (through Medicare) actually have worse outcomes than those that spend less.<sup>24</sup> The Army Medical Department is not isolated from these trends, and must also contend with them.<sup>25</sup>

Is it worthwhile for the Army to adopt these practices? Can they make a difference in patient care for the Army Medical Department (AMEDD), and bring a significant benefit to the Military Health System (MHS)? While the transition will have its challenges (as with any change), it should be considered as a “Quadrant 2 activity.”<sup>26</sup> It is not urgent (it does not demand our attention like an unfolding crisis), but it is important (it has a deep and lasting impact on the character of the relationship); therefore, ignoring it will have long-term consequences.

In his 2009-2010 Guidance as the Chairman of the Joint Chiefs of Staff (CJCS), Admiral Michael Mullen stated that the Department of Defense (DoD) must “focus on the Health-of-the-Force by considering holistically how to better...care for our people.”<sup>27</sup> As part of this holistic effort, Adm. Mullen asked the Consortium for Human and Military Performance (CHAMP) at the Uniformed Services University of the Health Sciences (USUHS) to develop the concept of Total Force Fitness (TFF).<sup>28</sup>

In December, 2009, a “Total Force Fitness for the 21<sup>st</sup> Century” conference was held at the [USUHS] to again address health, fitness, and performance optimization, and ultimately, develop a consolidated [CJCS] directive on the way ahead for DoD total force fitness...Furthermore, this program would be prevention focused, individual centric, and that the family would be recognized as central to the total force fitness equation.<sup>29</sup>

TFF comprises eight domains: physical, nutritional, medical, environmental, spiritual, psychological, behavioral, and social.<sup>30</sup> But these eight domains of TFF do not function independent of one another, but are interlocked and interactive.

The mind, body, and family are not separate functioning entities. Interventions that focus exclusively on nonpsychological aspects of medical fitness cannot withstand scientific scrutiny. The entire human being—mind, brain, and body—function as one integral whole.<sup>31</sup>

So TFF does not attempt to treat the body or the mind in isolation from one another, but treats the Soldier as a whole, as an organism whose parts are interdependent and which must be addressed together, not in isolation. Or, as Dr. Andrew Weil has stated:

The term integrative is consistent with Mullen’s vision of holistic health, as integrative medicine recognizes that health is more than the absence of disease and that a multi-disciplinary approach to health promotion often provides the maximum therapeutic benefit.<sup>32</sup>

Thus, we can see that IM is consistent with the aims of TFF (and therefore military medicine)—treating the patient as a whole, taking a preventive approach and putting the patient at the center of all decisions—and not just attacking problems as they arise.

### Why should the Army adopt IM?

Let us now look at the benefits of adopting IM practices in the AMEDD. This list should not be considered exclusive, but gives the salient reasons why this approach to medical care deserves our attention.

1. Outcomes. IM delivers outcomes which are equivalent to, or better than, those achieved with the use of TWM alone. When IM practices are instituted, patient outcomes are just as good as those under TWM, or even better. IM has been shown to

improve the management of chronic diseases (such as severe coronary heart disease, prostate cancer, chronic fatigue syndrome, chronic pain, cancer, high blood pressure) and of depression, and to improve population wellness.<sup>33</sup> Many US corporations have adopted IM principles and practices in their employee health programs with significant benefit, including Johnson and Johnson and Ford Motor Company.<sup>34</sup> But more importantly,

2. Cost. IM can deliver these outcomes at a reduced cost compared to TWM.<sup>35</sup>

This is achieved through a reduction in the use of costly medications and invasive procedures, and through group teaching (for dietary modification, some mind-body methods, and other modalities) which decreases per-patient cost.

As an example, consider coronary artery disease, which results from the buildup of cholesterol-based plaques in the arteries of the heart, a leading cause of death in the U.S. Annual spending on statin medications (to lower blood cholesterol) in the U.S. totals about 15 billion dollars;<sup>36</sup> and the DoD had 1,330,427 patients taking statin medications in FY11, at an estimated cost of \$665,213,500.<sup>37</sup> According to the American Heart Association, in 2006 1.3 million coronary angioplasty procedures were performed in the U.S. at an average cost of \$48,399 per procedure, or more than \$60 billion total; and 448,000 coronary bypass operations were performed at a cost of \$99,743 per surgery, or more than \$44 billion total.<sup>38</sup> In FY11, doctors performed 19,449 of these procedures on MHS beneficiaries, at an estimated total cost of \$1,190,946,679.<sup>39</sup> And recently, the American Academy of Pediatrics has recommended screening of children ages 12-19 for increased cholesterol (as a consequence of the growing epidemic of obesity in America), and treatment with statin

medications for children with overly elevated cholesterol.<sup>40</sup> This recommendation should concern us for two reasons. First, not all cardiovascular disease is secondary to increased cholesterol; fully one-third of all heart attacks occur in patients with a normal total cholesterol level.<sup>41</sup> Second, new concerns continue to arise about the long-term use of these medications in adults; most recently, these have related to memory difficulties<sup>42</sup> and an increased risk of diabetes.<sup>43</sup>

But statin medications are an expensive “stick” to take after the problems of high cholesterol and heart disease. It requires treatment of one hundred patients without heart disease for three and one half years with a statin medication to prevent one heart attack; in statistical terms, the “number needed to treat” (or NNT) is 350.<sup>44</sup> By comparison, giving a daily aspirin tablet to forty-four people for one year—which is cheap by comparison to statin medications—will prevent one heart attack; NNT here equals 44.<sup>45</sup> IM has shown that these conditions can be treated successfully (including in children) without the use of statin medications,<sup>46</sup> and not expose these patients to the risks, both known and unknown, associated with these medications.

For example, demonstration projects of the Ornish Spectrum Program of intensive cardiac rehabilitation with Mutual of Omaha showed a cost savings of \$30,000 per patient in the first year,<sup>47</sup> and with Highmark Blue Cross Blue Shield showed a 50% reduction in overall health costs in the first year.<sup>48</sup> Even if we accept that IM measures would prove successful for treatment of only 50% of this population (or even 25%), this is still a tremendous saving of resources.

### 3. *Quality of Life.* IM measures lead to an improved patient Quality of Life.

Because IM will either focus on measures, or use modalities, that TWM considers

outside its realm—such as social connectedness, yoga and meditation—patients treated with IM measures have a better quality of life.<sup>49</sup> They feel better physically and mentally, enjoy living more, and feel better about what they do.

In 2009, Drs. Milani and Lavi conducted a test in two diverse workplace settings. The interventions consisted of worksite health education, nutritional counseling, smoking cessation counseling, physical activity promotion, selected physician referral, and other health counseling. Significant improvements were demonstrated in quality of life scores, depression, and anxiety.<sup>50</sup>

***4. Resiliency.*** IM can increase the resiliency of Service Members. With its focus on the body and the psyche's ability to restore themselves, aided by measures such as proper diet, healing spices, herbal therapy, meditation and mind-body medicine, IM can make Soldiers more resilient—more resistant to the infectious diseases<sup>51</sup> that have historically hindered military operations (such as respiratory infections and diarrheal disease), recovering more quickly after injuries<sup>52</sup> (both through measures such as dietary and mind-body), and more resistant to the psychological strains of deployment and combat (e.g., through yoga and mind-body measures).<sup>53</sup>

***5. More choices for providers.*** IM is the only cost-containment measure that affects the content of the practitioner-patient relationship from within, not from without. Instead of constraints that are imposed by a formulary or a practice administrator, such as limiting more costly medications, or refusing to underwrite an expensive procedure, IM gives practitioners the ability to choose a lower-cost, less-intensive means of therapy. For example, instead of prescribing lifelong therapy with an acid-blocking medication (such as Nexium) for recurrent heartburn, IM can treat this patient by removing dietary irritants (e.g., coffee), teaching the patient stress reduction measures (meditation and breathing exercises), and recommending the use of an herbal that

improves mucosal resistance to stomach acid. This not only saves the cost of the PPI over the patient's life and prevents any long-term risk of the medication, but it also empowers the patient to make changes in their health.<sup>54</sup> (Also see below, "Consumer [patient] self-education," pp. 2-20 to 2-22.)

*6. Improved provider satisfaction.* IM has the potential to improve provider satisfaction.<sup>55</sup> As Dr. Dean Ornish has reported:

Practicing medicine in this way is particularly rewarding and emotionally fulfilling both for patients and for the physicians and other health professionals who work with them. This approach is caring and compassionate as well as cost-effective and competent because it addresses the fundamental diet and lifestyle issues that are often underlying causes of chronic diseases such as coronary heart disease, type 2 diabetes, stroke, hypertension, obesity, and other illnesses rather than just literally or figuratively bypassing them with only surgery and/or medications.<sup>56</sup>

Instead of analyzing a patient's problems to find a medication as the solution, and then moving on quickly to the next patient, practitioners spend more time with a patient to discover the root causes of an illness.<sup>57</sup> The provider and the patient interact at a deeper level collaborating to solve the patient's problem(s), which makes the time spent more satisfying for both.

#### Principles for adopting Integrative Medicine

The following principles should guide the Army (and the DoD) as it begins to adopt IM practices. These principles will insure that the Army maintains a consistent focus as it continues to expand its use of IM.

##### *a. The body is the healer.*

This principle must remain foremost; it is difficult to over-emphasize. The body's capability to heal itself exists at all levels, from the fundamental life process, DNA replication, to cellular repair and homeostasis, through repair of damage to major

structures such as bones (fractures) and many different tissues (hemorrhage, lacerations, contusions).<sup>58</sup> And examples of spontaneous healing of major, life-threatening diseases, not only cancer (which gets too much attention) but also other diseases such as autoimmune, traumatic and infectious, can be found without great difficulty.<sup>59</sup>

Even when allopathic medicine performs a radical intervention, such as excision of a diseased part (infected gallbladder) or a tumor, or administers cancer chemotherapy, this can be seen as an attempt to assist an overwhelmed natural healing response, by removing that which it has failed to correct; and then allowing the body to restore itself to health.

Since these natural healing processes are the foundation for all healing and wholeness, and yet are beyond our control, our efforts must support them and not impair them. Our therapies should not interrupt or impair natural healing, but must promote and strengthen the body's own healing response. Only in this manner can we begin to shift from attacking problems after they develop, to promoting health and preventing problems before they occur.

*b. Patient-centric.*

In the past, medical practice functioned autocratically, along the lines of either the priestly model or the engineering model.<sup>60</sup> These models assume that medicine is a complex subject, and that only those who have studied it long and deeply could know what the best treatment for the patient was. But in recent years, medicine has evolved to a more collaborative relationship between a physician and a patient. (Consider the shift in the treatment of breast cancer in the U.S. in the last fifty years.) Now, it is even

possible for a mentally competent patient to refuse a life-saving therapy, and die because of their refusal, without the physician incurring any liability.<sup>61</sup>

IM recognizes that there are mind-body interventions which have a deep impact on healing. Key to these are belief and desire. If the patient undergoes a course of therapy that is less than desirable, and perhaps contrary to their wishes, these mind-body interactions will work in a negative manner. But if a patient is given a course of therapy that is of nominal value, but they believe it will help them, they may recover despite having received no outright value from the treatment. In a European study of asthma, 70% of asthmatic patients improved when given the resin of the plant *Boswellia serrata* for six weeks, *but 27% of the control patients improved although they were given a placebo (lactose—“milk sugar”).*<sup>62</sup> They got better because they believed they would get better. Sometimes patients with chronic debilitating illness recover when a change in their life brings new and strong emotions. Dr. Andrew Weil gives an example of two young women with systemic lupus erythematosus, an autoinflammatory disease that attacks the joints and kidneys; both went into complete remission after life-changing events that provoked intense emotions (one fell in love and got married; one became a born-again Christian).<sup>63</sup> As the Book of Proverbs states: “For as he thinketh within himself, so is he.”<sup>64</sup>

This power needs to be utilized. Army medicine needs to capitalize on these interactions to improve patient outcomes. By putting the patient at the center of the decision-making process, by letting him (or her) determine the therapy, these mind-body interactions will function in a positive, not a negative manner. This not only enhances

healing, it empowers the patient to bring to make healthy changes in other areas of their lives.

Lastly, a focus on wellness will include the elimination of medical pessimism, the expectation that patients will never improve without the application of a viable TWM therapy or that those who have exhausted all TWM therapies without problem resolution are doomed.<sup>65</sup> This is completely contrary to a focus on health and healing. Instead, providers must inspire patients with hope and the possibility of healing, remembering that “There are more things in heaven and earth, Horatio/Than are dreamt of in your philosophy.”<sup>66</sup>

*c. Focus on wellness and disease prevention.*

While this concept is not new to medicine, it means a shift of focus from medical care as it is currently delivered in the Army (DoD). Currently, care proceeds on a disease-based focus: appointments are given mostly for acute illnesses and injuries; patients can schedule wellness visits, but the system does not regularly check for these or pull in patients (e.g., call to remind patient of need for exam or test, and offer an appointment). Perhaps this will begin to change as the MHS implements the Patient-Centered Medical Home (PCMH). (PCMH is discussed further below.)

Currently, preventive screenings are based upon the U.S. Preventive Services Task Force Recommendations. Created in 1984, the U.S. Preventive Services Task Force (USPSTF or Task Force) is an independent group of national experts in prevention and evidence-based medicine that works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, or preventive medications.<sup>67</sup> But the

USPTF Recommendations are mostly after-the-fact measures; they address the finding of an established disease rather than preventing its onset in the first place. A true preventive focus would look to reducing the chances that a disease could occur by minimizing risk factors. The evidence is growing that this approach can be successful. The INTERHEART Study showed that worldwide, 90% of all population attributable risk (PAR) for a first heart attack in men and 94% of all PAR in women is the result of nine modifiable risk factors (abnormal lipids, smoking, high blood pressure, diabetes, abdominal obesity, psychosocial factors, consumption of fruits and vegetables and of alcohol, and regular physical activity).<sup>68</sup> Changing these risk factors can change the number of first heart attacks in peoples everywhere. The dietary and lifestyle changes of the Ornish Spectrum Program, in addition to their effect on heart disease, have been shown to have an impact on prostate cancer.<sup>69</sup> And research in the developing field of angiogenesis has shown that there are many foods that have potential to prevent the growth of the excessive new blood vessels associated with cancer and some chronic diseases.<sup>70</sup>

A true focus on wellness and prevention would focus on measures that prevent the occurrence of disease, and could then address measures of wellness as well as the USPTF recommendations. These other measures of wellness could include sleep (a great indicator of overall well-being and behavioral health), immune function (perhaps by assessing minor illnesses or immune-deficiency markers, such as warts or outbreaks of shingles), and stress (measured on a standard reported scale, to include family, environment, and work).

A wellness exam that saw every patient every year, and focused on the above measures, would go a long way toward improving the health of the MHS' serviced population. The Services transitioned from doing a periodic physical exam to a Periodic Health Assessment for this very reason.<sup>71</sup> We should broaden this in both scope (what it covers) and reach (who it touches) to improve population health.

*d. Individualize therapy.*

Integrative medicine looks at traditional, complementary and alternative medicine for solutions to patient problems, choosing the best therapy from among the three with an emphasis on those that are low-cost and less intensive. Some therapies are considered to have a solid theoretical basis, or a proven record of performance, for a particular problem and are therefore considered the first line treatment for these conditions. Other therapies may be effective for a condition but are less reliable in their effect, to where they are not considered useful for most patients; the evidence for them may even be anecdotal.

When confronting a medical problem that is not responding to a standard therapy after an adequate trial period, providers should be able to offer therapies that have a lower success rate if the patient is agreeable to the therapy. While this appears contrary to sound medical practice, we know that there is great variation in individual physiology: what works for many patients may not work for the few; and those few should be offered every opportunity to return to health.<sup>72</sup>

*e. Standard of evidence.*

The gold standard of reliability in clinical trials has become the Randomized-Controlled Trial (RCT). The RCT seeks to eliminate all possible sources of bias to

(prove or disprove) the validity of a therapy. In an RCT, participants (i.e., patients) are randomly assigned to either a treatment group (can be more than one) or a control group, which does not receive the intervention under study to allow for comparison of effectiveness. This is considered “the most scientifically rigorous method of hypothesis testing available.”<sup>73</sup>

The randomised controlled trial (RCT) is considered to provide the most reliable evidence on the effectiveness of interventions because the processes used during the conduct of an RCT minimise the risk of confounding factors influencing the results. Because of this, the findings generated by RCTs are likely to be closer to the true effect than the findings generated by other research methods.<sup>74</sup>

But for IM measures, an RCT may not be an adequate test of CAM therapies.

The difficulties are numerous, and include the following:<sup>75</sup>

1. RCT's focus on outcomes for whole populations of patients, but CAM modalities are often tailored to meet the needs of the individual patient, which can confound applying results to whole populations;
2. RCTs focus on measurable outcomes (mortality, tumor shrinkage) while CAM modalities may focus on subjective symptoms (pain, fatigue, cognitive function);
3. CAM “treatments” may not be directed toward a specific disease outcome, but rather toward disease prevention or promoting general wellness; also, the time to run such a study could run years or decades;
4. Placebo effects are not a confounding (extraneous) factor, but are a recognized CAM modality, and can constitute part of the treatment itself.

Fixation on RCTs has led to a mindset in which only therapies that are proven effective by this most rigorous test can be accepted. Setting the bar this high may not be necessary. As Dr. Andrew Weil has stated, the standard of evidence required for an IM therapy should be proportional to the risk to the patient; if the potential for harm is

high, then we should demand a high standard of evidence.<sup>76</sup> But then, the corollary to this proposition should also hold true: if the threat to the patient is low, we should not have to hold it to a rigorous standard of evidence. If a therapy (such as a breathing exercises) hold a low potential for causing harm to the patient, then we should not have to wait for years of RCTs to prove or disprove their efficacy, or to begin teaching them to patients, if they could be efficacious for a particular patient.

*f. Drive Research.*

The Army should not begin to implement IM measures in clinical practice without beginning to push research in these areas, for two reasons:

1) The Army has a unique patient population with unique needs, which are different from that of the general population in America. It is not a representative subset of the general population, but is skewed (necessarily) toward a younger and more fit population. Problems which are of particular interest among this group include: resiliency, both physical and behavioral, including decreasing susceptibility to PTSD; and improving healing after injuries, both from training and from the multi-system trauma that has occurred all too frequently during the conflicts in Afghanistan and Iraq. IM measures must be studied and evaluated to see which can best meet the unique needs of this population.

2) The Army is part of one of the largest healthcare organizations in the U.S.<sup>77</sup> Any initiatives which it takes in this direction will set an example for other healthcare organizations, both large and small, throughout the country. The Army can set a direction for the growth of Integrative Medicine in the U.S.

## A Vision for the Future

In adopting Integrative Medicine, Army Medicine should act on four broad areas: Knowledge; Documentation; Reimbursement; and Structure of Care.

*1. Knowledge.* “Knowledge” refers to the intellectual basis for IM, and guides the overall implementation of policies and procedures. This line of effort includes the following action items:

a. An Office of The Surgeon General (OTSG)-level consultant in IM. OTSG has neither an office nor a focal individual to guide and direct the implementation of IM practices and procedures, and no one to advise The Surgeon General (TSG) about IM practices and procedures in the civilian medical community or within the AMEDD enterprise. The ever-broadening public acceptance of IM measures will put pressure on individual providers to add them in to their practice throughout the AMEDD. The OPORD which implements the findings of the Pain Management Task Force contains a directive to establish a consultant position in IM at OTSG.<sup>78</sup> The AMEDD needs to address the rising tide of popularity of IM by setting boundaries and guidelines for the use of IM within the AMEDD. This will, first, allow for the standardization of services from facility to facility (although this cannot be predicted, based upon individual provider training and expertise); and second, minimize the chances of any untoward outcomes.

Furthermore, it appears that Integrative Medicine will become a Board certified specialty soon, perhaps as early as 2014. The American Board of Physician Specialties is developing a Board Certification process for IM.<sup>79</sup> It is expected that initially physicians will be allowed to sit for certification based on experience (i.e., “grandfathered”), such as with Emergency Medicine in the 1990’s; but eventually,

physicians will be required to have completed a Fellowship in Integrative Medicine.

With the formal recognition of this aspect of medicine through board certification, IM will move closer to the mainstream of medicine in the U.S.; and the AMEDD will need to have a better understanding of this way of practicing medicine.

The Army has a host of ongoing IM-directed research, with much (but not all) either centrally directed or monitored by OTSG. The Samueli Institute, a civilian agency in Alexandria, VA initiates and conducts a significant portion of the DoD's research in IM. The Samueli Institute is "a non-profit (501(c)(3)) research organization supporting the scientific investigation of healing processes and their role in medicine." Their research domains include integrative medicine, and military and veterans health care.<sup>80</sup> Their Center for Research on Integrative Medicine in the Military (CRIMM) has a research portfolio that currently involves eight Army facilities (Brooke Army Medical Center (AMC), Walter Reed AMC, Madigan AMC, Evans Army Community Hospital, Darnall AMC, the Walter Reed Army Institute of Research, and Tripler AMC) involving 18 different lines of inquiry. (The full portfolio encompasses 17 federal facilities and 31 lines of inquiry.)<sup>81</sup>

Do all of these projects track with Army Medicine's strategic initiatives? Perhaps it is time to in-source the direction for these many projects, either at OTSG or even higher, at the office of the Assistant Secretary of Defense for Health Affairs. This would insure that efforts are coordinated, that duplication is avoided, and that research is directed to the ends that the Army (or the DoD) needs. With the pending drawdown in end strength and resources, it is more important than ever that the Army control their allocation.

b. Consumer (i.e., patient) self-education. IM is about putting patients in charge of their own health and decision-making; but it is difficult to perform all the necessary patient education within even a 45-minute visit. But if there was reliable IM-based health information that was accessible to patients when they were not in the clinic, then this can help patients to take better charge of their health, and help the AMEDD to get into the “white space” of 525,500 minutes per year that is outside of the 100 minutes per year (on average) that patients spend in Army facilities.<sup>82</sup> Providing information will facilitate the process of patient empowerment, getting them to participate in their care as an active consumer instead of just receiving care passively. A couple of possibilities for this include:

1) Adding an education piece to the Periodic Health Assessment. If there was a required education part to the PHA, this could be a vehicle for change in health habits of Soldiers (and eventually Family members). And if it covered different topics each year, then the PHA would shift from being a perennial (and tedious) process to one that is cyclical and more intellectually engaging. For example, a three-year cycle could cover nutritional medicine in the first year, sleep and stress management in the second year, and discuss the virtues of yoga, OMT and spirituality in the third year.<sup>83</sup> While changing the whole PHA would require a Joint collaborative effort (since the PHA is guided by an Assistant Secretary of Defense for Health Affairs Policy, HA Policy 06-006), this does not keep the Army from adding its own education layer on top of the current PHA requisite processes.<sup>84</sup>

2) A web-based information source for all patients: Soldiers, Family Members and Retirees. Patients are using the internet more and more to find and use

health care information. A survey by the Pew Research Institute in 2011 found that 59% of all adults in the U.S. looked for health information on the internet; 66% of all internet users looked for information about a specific disease or medical problem, 56% looked for information about a medical treatment or procedure, and 44% looked for information about doctors or other health care providers.<sup>85</sup>

This information could possibly reside on the Comprehensive Soldier Fitness (CSF) website; or CSF could contain links to reliable IM websites. CSF is the Army's program to "Develop and institute a holistic fitness program for Soldiers, families, and Army civilians in order to enhance performance and build resilience."<sup>86</sup> The current CSF training modules focus on social and interpersonal skills, but the physical modules present only limited information on diet, physical activity and making proper choices for health. This portal could become a tremendous resource for improving Soldier and Family health by providing approved IM information that could improve wellness and physical resiliency.

c. Provider education. As IM practices become more widespread in the AMEDD, and patients come with questions about them and seeking these modalities, there will be providers who are relatively less knowledgeable about IM. The AMEDD will need to improve provider knowledge. Some options for this include:

- 1) A block of instruction for all providers as an introduction to IM concepts, areas of practice, and an overview of each modality, with links to further references. This could be done via a web-based Continuing Medical Education (CME) module of (perhaps) 20 or 30 hours; and the CME credit would be an incentive for completion.

2) Adding IM to the curriculum at the Uniformed Services University of the Health Sciences (USUHS), perhaps via a partnership between the USUHS and the Consortium of Academic Health Centers for Integrative Medicine (CAHCIM). USUHS graduates have the longest service commitment at the end of their training (7 years,<sup>87</sup> vs. a maximum of 4 years for Health Professions Scholarship Program graduates<sup>88</sup>), and more of them remain in the service after satisfying this obligation,<sup>89</sup> they are therefore the physicians with the most longevity in the Services. If the USUHS added IM education to its curriculum, this would anchor the change of IM in military medicine firmly in the future.<sup>90</sup>

3) Other formal provider education. Perhaps the AMEDD's Long-Term Health Education and Training (LTHET) could add a Fellowship Program in Integrative Medicine to its array of educational offerings. There are nineteen IM Fellowship programs in the U.S. currently.<sup>91</sup> The University of Arizona's Program is the oldest IM Fellowship, established in 1994. It is a two-year program of study which is mostly distance education but requires three separate one-week sessions in Tucson, AZ at the University. The total cost for the program is approximately \$31,000, which is close to the \$15,000 per year target of LTHET.<sup>92</sup> The AMEDD could fund attendance at a fellowship program for select key personnel, such as Commanders and Deputy Commanders of facilities and large medical units. Or it could develop an additional duty position of "Integrative Medicine Facilitator" at an MTF, and send this person through the chosen fellowship program.

d. References. The Oxford University Press has begun publishing the Weil Integrative Medicine Library, which currently contains six volumes (Cardiology,

Oncology, Pediatrics, Psychiatry, Rheumatology, and Women's Health).<sup>93</sup> This shows not only a broadening acceptance of IM, but an increasing academic focus which is welcome. Medical libraries should consider adding this series to their offerings to improve provider knowledge of IM, and to standardize practices.

## 2. Documentation.

The electronic health record (E.H.R.), whether the current platform (AHLTA<sup>94</sup>) or another is in use, must be able to accurately capture data from IM-based encounters, whether procedures, counseling or other IM-based techniques. AHLTA already captures data from osteopathic manipulative therapy (OMT) encounters, but only as a text-box entry. The preferred method here would be via a template (such as an AIM form) which allows box checks for each item. This makes documentation easier for the provider, rather than requiring them to type everything into a text box; and it will allow for data mining to compare patient outcomes in research. Based on the success of AIM forms and other templates within the E.H.R., the AMEDD can certainly develop a capability to capture other IM data as well, and retrieve it for population and outcomes studies.

The E.H.R. should also be capable of displaying global measures of success of IM measures. These could include, for example, the number of patients in a provider's profile that have diagnosed high cholesterol, yet have normal cholesterol levels without the use of medications. Or it could show a total prescription cost burden to the MHS by individual providers for certain categories of medications (e.g., blood pressure, antibiotics, statins). Command interest and the need to control costs will dictate which measures to track.

3. Reimbursement. Currently, the MEDCOM distributes funding via a system that is based on the prevailing civilian model of “fee for service” (FFS): a provider is reimbursed based upon the different services that are provided, with different levels of intensity for each patient visit and codes for everything done for the patient, from something as simple as a throat culture to as complex as cardiac bypass surgery. But a system such as this is not productive for an IM-based practice, where a great deal of time is spent in counseling and coaching patients. If a physician is reimbursed (in civilian medicine) the sum of \$35 (or less) for a 45-minute counseling session to get a patient to improve their diet, and therefore their weight, cholesterol and cardiac risk, but can be reimbursed \$8,000 (or more) for spending 15 minutes to put a stent in the same patient’s coronary artery, then it can be seen that this reimbursement model is skewed away from the low-tech, low-cost modalities that are central to IM.<sup>95</sup> The 2009 IOM Report on IM notes that a capitation structure works well for practices that have adopted IM practices.<sup>96</sup> Perhaps a three-tiered capitation structure would work for the MEDCOM, but there will probably have to be an intermediate vehicle to facilitate the move away from FFS and to a more IM-friendly reimbursement structure.

4. Structure of Care. Now let us turn our attention to how these ideas impact how care is delivered by the AMEDD.

First, how is IM to be integrated into current delivery structure? The Institute of Medicine 2005 Report gives several approaches to integrating TWM and CAM. One of these plans shows four different models.<sup>97</sup> According to this plan, the AMEDD is currently functioning under the *consultant model*, “in which patients are referred to CAM providers for particular therapies.”<sup>98</sup> But this model separates the Primary Care

Manager (PCM) and the IM provider, making continuity of care difficult. The AMEDD would be better served by going to the *primary-care model*, wherein IM providers are integrated within a primary care clinic. This would make communication and continuity of care between TWM and IM providers easier, but it would also facilitate the provision of IM services by PCMs. (Of the other two models: Army Wellness Centers operate under the *fitness center model*; and the *virtual model* is not a good fit for the AMEDD).

Let us consider medical care at MTFs as two types of care: primary care and specialty care. Primary care is the first level of care the patient encounters (Sick Call, routine appointments), and includes the specialties of emergency medicine, internal medicine, pediatrics, and family practice.<sup>99</sup> This is the only care provided by MTOE unit medical facilities (battalion aid stations, brigade and divisional medical companies) and outlying clinics. Specialty care is available at Army Hospitals, and some Army Health Clinics, such as Kenner AHC at Ft. Lee, VA; and Medical Centers, where the specialties needed by the fewest patients are found. In addition, Army Wellness Centers provide preventive services to groups and individuals from a location outside of the MTF. If the AMEDD is to bring a true focus on wellness and prevention to its enterprise, then there will have to be changes in each one of these types of care.

Primary and specialty care treat individual patients and are focused on fixing one particular problem; they should shift their focus to improving health and wellness, to insure they are addressed in each visit. Wellness Centers provide services to groups and individuals, and center on wellness measures for a large patient population; they should incorporate IM measures into their services. The AMEDD's current vision of IM is that it belongs in specialty care;<sup>100</sup> but there are a number of modalities and

counseling that are well within the realm of primary care medicine<sup>101</sup>, and can easily be utilized by PCMs. These include: nutritional and botanical medicine; mind-body measures (including meditation); yoga and breathing exercises; social connectedness; and acupuncture (via the PCM course). Adding these items at the primary care level will give many more tools to PCMs.

The DoD's current "Patient-Centered Medical Home" initiative (PCMH) begins to move military medicine in the right direction for this:<sup>102</sup> it allows patients to have longer visits with providers, and it allows the primary care team to direct each patient to the proper provider for each visit. Patients do not need to see a physician if their time would be better spent with a different provider (clinical pharmacist, nurse case manager, dietitian, etc.). Under the PCMH model, each PCM works with two nurse screeners who do most of their work at the front and back of the visit: at the beginning of the visit, the nurse takes the patient's history, and upon the provider's arrival repeats it in front of the patient, to insure it has been properly captured; and the nurse enters orders for ancillary studies (lab, X-rays) and prescriptions at the direction of the provider before s/he leaves the room. The nurse functions as an extension of the physician.

But while PCMH is a start down the road to implementing IM, it does not go far enough. It allows physicians the ability to take an IM approach to each patient problem, but nothing in current delivery systems facilitates or encourages this process. For example, instead of sending a patient who comes for a refill on a cholesterol-lowering medication to a clinical pharmacist, it might be better for them to talk with an IM-based dietitian about lowering their cholesterol through dietary methods. And when the

National Cholesterol Education Program (NCEP)<sup>103</sup> Therapeutic Lifestyle Change

(TLC) diet fails to work, then we don't condemn the patient to a statin medication all their life, but can offer them the choice of dietary interventions that are more stringent but offer a better chance of success and stand to improve the patient's quality of life measures (as stated above).<sup>104</sup>

To shift to an IM focus, the question sets (Subjective portion of note) in the E.H.R. would have to be revised to include questions for areas that may not be currently addressed, such as work (type of work, location, hazards, and patient's emotional state at work), and the nurses would need additional training on this. And the Plan portion of the note in the EHR must allow for the documentation of non-prescription therapies. Patient instructions should include text with instructions in IM topics such as dietary changes, stress relief, or other recommendations; or allow the inclusion of a link to this information.

Second, the use of the nurse screener to extend the reach of the PCM must not prevent the PCM from coming to know and understand the patient as a complete individual, with an appreciation for the nuances of their life that can make a difference in their health. A fundamental question that should be part of each visit (asked by either the nurse screener or the PCM) is, "Are you healthy?" If the patient says "Yes," they should be able to explain why; if they say "No" or "I don't know" this provides a teaching moment to communicate the concept of health and wellness and make it the focus of the visit. And this simple question would incorporate the concept of health as espoused in Total Force Fitness<sup>105</sup> into not just primary care, but all levels of care.

Referred care should contain proven therapies that provide additional IM resources in the treatment of problems that are too complicated for primary care

medicine. In this context, “proven therapies” does not mean that the therapy was validated by an RCT, but that the standard of evidence for the therapy must be judged in proportion to the risk to the patient, as stated above. These could include:

1) For cardiac patients (those who either decline coronary bypass or those whose bypasses have failed and are not good candidates for another bypass procedure), the Ornish Spectrum Program for intensive cardiac rehabilitation has proven that it can reverse coronary artery disease without the use of medications, through changes in diet, weight control and moderate exercise, and stress reduction (through yoga, medication, and social connectedness). The Program requires 18 each 4-hour sessions over 12 weeks and a small staff (MD, RN, dietitian, behavioral health counselor, admin assistant). Participants track their compliance with the therapeutic measures, which is used to generate a group metric of progress (which must meet Program targets). The Program is approved for Medicare reimbursement.<sup>106</sup> The AMEDD should investigate getting its MTFs approved as participating facilities in the Spectrum program.

2) Cancer patients, either those with side effects that are difficult to manage with conventional therapy (e.g., use of acupuncture for the nausea and vomiting, fatigue and malaise secondary to chemotherapy or radiation therapy) or those who have failed all known conventional therapies and have few options left. In addition, the Ornish Spectrum Program has been shown to slow the growth of prostate cancer.<sup>107</sup>

Army Wellness Centers (AWCs) function under the AMEDD’s Public Health Command. AWCs are currently designed to provide population-based preventive services, to include education, tobacco cessation referrals, exercise testing and

physiologic testing. They should include IM-based measures in their education, such as meditation, yoga, and other mind-body measures for stress management (which could minimize the risk of developing PTSD), and should emphasize social connectedness as a therapeutic measure that improves the immune system.

Regarding both the growing evidence for the effectiveness of IM measures, and the rising level of public acceptance, the University of Arizona is now conducting a demonstration project of an IM-based clinic. Their Center for Integrative Medicine is currently partnered with the employee health system for Maricopa County, AZ, in a demonstration project that runs until 2014.

The Integrative Medicine PrimAry Care Trial (IMPACT) will compare outcomes for patients treated using integrative care with similar patients treated using conventional medical care, and will be used to inform the discussion regarding the value of Integrative Primary Care for both patients and employers, and influence health care policy relative to the reimbursement of integrative health care services, wellness and prevention.<sup>108</sup>

The AMEDD needs to catch up to the civilian market. The time is ripe for a demonstration project in the AMEDD as well. It could be either a freestanding clinic, an installation facility, or a single primary care clinic within a Medical Treatment Facility (MTF). Finding suitable personnel to staff it should not be overly difficult. With its own MEPRS codes, outcomes could be tracked and compared to standard clinics. It is time to see if such a clinic can provide outcomes and truly reduce cost.

There should be third-order effects from this shift as well. For example, how does this affect Army dining facilities (DFACs)? If we know that fried foods are bad because they promote the formation of trans-fats, do we need to get DFACs to use less and less deep frying? Should DFACs offer tofu-based items on their menus, even in small portions? Should DFACs have green tea, blueberries, and broccoli (or other

foods high in antioxidants) in their daily offerings because of the antioxidant properties of these foods? The possibilities are numerous, and beyond the scope of this paper, but should be given consideration at the highest levels of the Army.

In short, there is ample room for a new and broader vision for IM in the AMEDD.

#### Obstacles to implementation.

There are several obstacles to implementation, but they can be overcome with policy and leadership.

1) “It’s not for warriors.” IM measures such as yoga and meditation will probably strike most line commanders as anathema to the warrior mindset. Either personal experience, or witnessing the results of IM approaches for their Soldiers, can overcome this obstacle.

2. More time-intensive. It takes more time to operate in this manner, to dig into a patient’s problem in search of root causes and solutions, looking in ways and into areas that TWM does not consider. A 10- or 15-minute acute care visit might require 20 or 30 minutes; a 20-minute routine or preventive visit might need 40 or 45 minutes.<sup>109</sup> The initial impact here is slower throughput of patients during a duty day, which can lead to a backlog of patients needing appointments; but the combined factors of patient empowerment (to seek solutions for minor problems) and problem-solving at a deeper level should lead to an eventual offloading of appointment requirements. Until this divide is crossed, this will require an innovative approach to scheduling.

3. Reimbursement. The current fee-for-service (FFS) structure that the MEDCOM uses for distributing fiscal resources to its facilities puts a high value on procedures and a low value on counseling and teaching, which are a keystone of IM

practice. The 2009 IOM Report on IM notes that a capitation structure works well for practices that have adopted IM practices.<sup>110</sup> Perhaps a three-tiered capitation structure would work for the MEDCOM, but there will probably have to be an intermediate vehicle to facilitate the move away from FFS and to a more IM-friendly reimbursement structure.

### Conclusion

Integrative medicine offers the AMEDD a chance to recapture the soul of its business of helping patients through adopting measures that are less costly and less dependent on intensive interventions, while harnessing the body's natural healing capability and improving the quality of life for both providers and patients. The Army Medical Department needs to begin now to draft a vision for utilizing this powerful resource and transforming its medical care from a technical mastery of facts to an art that brings life and health to all it touches.

### Endnotes

<sup>1</sup> Roberts WC. "Dean Ornish, MD: A Conversation with the Editor." 2002. *The American Journal of Cardiology*; 90:281.

<sup>2</sup> *National Defense Authorization Act for Fiscal Year 2010*, Public Law 84, 111<sup>th</sup> Cong., 1<sup>st</sup> sess. (October 28, 2009), Section 711.

<sup>3</sup> LTG Eric B. Schoomaker, U.S. Army Surgeon General, "Army Pain Management Task Force Charter," Fort Sam Houston, TX, U.S. Army Medical Command, August 21, 2009.

<sup>4</sup> "Pain Management Task Force: Final Report." Falls Church, VA, U.S. Army Office of the Surgeon General, May 2010, 42-45.

<sup>5</sup> Institute of Medicine, The National Academies, *Complementary and Alternative Medicine in the United States* (short title: IOM, *CAM in the U.S.*, 2005), (Washington, DC: The National Academies Press; 2005), 196.

<sup>6</sup> For this paper, "traditional Western medicine" is defined as medical knowledge and practice as has existed in medical schools in the United States from the widespread adoption of

the recommendations of the Flexner report until approximately 1975. (Abraham Flexner, *Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching*, Bulletin No. 4, (New York: The Carnegie Foundation for the Advancement of Teaching, 1910)). <http://www.carnegiefoundation.org/publications/medical-education-united-states-and-canada-bulletin-number-four-flexner-report-0> (accessed March 30, 2012). The term “biomedicine” has also been proposed here, as “a medicine within which the biological sciences are a core component and where explanations for disease and illness are predominantly biologically based (Mead and Bower, 2000).” See: Ian D. Coulter et al, *Hospital-Based Integrative Medicine: A Case Study of the Barriers and Factors Facilitating the Creation of a Center* (Arlington, VA: The Rand Corporation; 2008), 6. [http://www.rand.org/pubs/monographs/2007/RAND\\_MG591.pdf](http://www.rand.org/pubs/monographs/2007/RAND_MG591.pdf) (accessed April 16, 2012).

<sup>7</sup> The Bravewell Collaborative, *What is Integrative Medicine?* (Minneapolis, MN: The Bravewell Collaborative; 2011), 1. [http://www.bravewell.org/content/Downloads/What\\_Is\\_IM\\_2011.pdf](http://www.bravewell.org/content/Downloads/What_Is_IM_2011.pdf) (accessed September 23, 2011). But see note 10 below for full quote.

<sup>8</sup> National Center for Complementary and Alternative Medicine, National Institutes of Health, *What Is Complementary and Alternative Medicine?* July 2011, <http://nccam.nih.gov/health/whatiscam/> (accessed December 5, 2011).

<sup>9</sup> Andrew Weil, MD, “What is Integrative Medicine?” (n.d.), *DrWeil.com*, video file. <http://www.drweil.com/drw/u/ART02054/Andrew-Weil-Integrative-Medicine.html> (accessed December 5, 2011).

<sup>10</sup> The Bravewell Collaborative, *What is Integrative Medicine?* (note 7) appears to dissent from this view, when it states: “Integrative medicine is **not** the same as alternative medicine, which refers to an approach to healing that is utilized in place of conventional therapies, or complementary medicine, which refers to healing modalities that are used to complement allopathic approaches. If the defining principles are applied, care can be integrative regardless of which modalities are utilized.” But “integrative medicine” requires elements of TWM and CAM used together, so no contradiction exists.

<sup>11</sup> “The Bravewell Collaborative, *What is Integrative Medicine?* 5.

<sup>12</sup> “The Bravewell Collaborative, *What is Integrative Medicine?* 3.

<sup>13</sup> Andrew Weil, MD, e-mail message to author, April 9, 2012.

<sup>14</sup> See: “The Basics on Complementary and Integrative Medicine,” *US News Health* (online edition), January 28, 2010, <http://health.usnews.com/health-condition/heart-health/integrative-medicine> (accessed March 8, 2012). According to the National Center for Complementary and Alternative Medicine (NCCAM), 40% of the U.S. population spent nearly \$34B on out-of-pocket complementary and alternative therapies and products during 2007 alone; see: Barnes, P.M., Bloom, B., and Nahin, R. “CDC National Health Statistics Report No. 12. Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007,” December 10, 2008, <http://nccam.nih.gov/news/2008/nhsr12.pdf> (accessed March 8, 2012).

<sup>15</sup> Institute of Medicine, The National Academies, *Complementary and Alternative Medicine in the United States* (Washington, DC: The National Academies Press; 2005).

<sup>16</sup> Ibid, 50-56.

<sup>17</sup> Ibid, 50.

<sup>18</sup> Ibid, 52-4 (Table 2-2).

<sup>19</sup> Ibid, 51-54.

<sup>20</sup> For this listing, these are the 15 countries with 2008 GDP per capita above \$32,305 and a total GDP above 3.4 billion dollars. They are: Australia, Austria, Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom and the United States.

<sup>21</sup> National health data in this paragraph come from the Organization for Economic Co-operation and Development (OECD), as listed by the Henry J. Kaiser Family Foundation on their website, <http://www.kff.org/insurance/snapshot/OECD042111.cfm> (accessed April 19, 2012).

<sup>22</sup> OECD (2011), *Health at a Glance 2011: OECD Indicators*, OECD Publishing. [http://dx.doi.org/10.1787/health\\_glance-2011-en](http://dx.doi.org/10.1787/health_glance-2011-en) (accessed April 19, 2011).

<sup>23</sup> Andrew Weil, MD. *Why Our Health Matters: A Vision of Medicine that can Transform our Future* (New York: Hudson Street Press [The Penguin Group]; 2009), 67.

<sup>24</sup> Fisher ES, Bynum JP, Skinner JS. 2009. "Slowing the Growth of Health Care Costs—Lessons from Regional Variation." *N Eng J Med* 360;9:849-852.

<sup>25</sup> US Department of Defense, TRICARE Management Agency, *2012 MHS Stakeholders Report* (Washington, DC: TRICARE Management Agency, U.S. Department of Defense; 2012), 12. [http://www.health.mil/About\\_MHS/StakeholdersReport.aspx](http://www.health.mil/About_MHS/StakeholdersReport.aspx) (accessed April 19, 2012).

<sup>26</sup> Stephen R. Covey, *The Seven Habits of Highly Effective People* (New York: Simon and Schuster; 1989), 150-156.

<sup>27</sup> Admiral Michael Mullen, "CJCS Guidance for 2009-2010" (Washington, DC: U.S. Department of Defense, 2009). [http://www.jcs.mil/content/files/2009-12/122109083003\\_CJCS\\_Guidance\\_for\\_2009-2010.pdf](http://www.jcs.mil/content/files/2009-12/122109083003_CJCS_Guidance_for_2009-2010.pdf) (accessed March 30, 2012).

<sup>28</sup> LTC Wayne B. Jonas, MC, USA (Ret); COL Francis O'Connor, MC, USA; Patricia Deuster, PhD, MPH; and COL Christian Macedonia, MC, USA. "Total Force Fitness for the 21<sup>st</sup> Century: A New Paradigm." *Military Medicine* 175,8:i, 2010.

<sup>29</sup> COL Beverly C. Land, MC USA. "Current Department of Defense Guidance for Total Force Fitness." *Military Medicine* 175,8:3, 2010.

<sup>30</sup> LTC Wayne B. Jonas, MC, USA (Ret); COL Francis O'Connor, MC, USA; Patricia Deuster, PhD, MPH; et al. "Why Total Force Fitness?" *Military Medicine*, 175,8:8-9, 2010.

<sup>31</sup> LTC Wayne B. Jonas, MC, USA (Ret) et al. "Why Total Force Fitness?" *Military Medicine* 175,8:11, 2010. See in particular "Getting to Total Force Fitness (pp. 10-12) for a fuller discussion of the impact of the different domains on each other.

<sup>32</sup> Weil A. "Why integrative oncology?" In: Abrams D, Weil A, eds. *Integrative Oncology* (New

York: Oxford University Press; 2009), 3-15. As quoted in: Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, "Mind-Body Skills for Regulating the Autonomic Nervous System" (Arlington, VA: Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury; 2011), 5.

<sup>33</sup> See: Ornish, D for the Multicenter Lifestyle Demonstration Project Research Group. "Avoiding Revascularization with Lifestyle Changes: The Multicenter Lifestyle Demonstration Project." *American Journal of Cardiology*. 1998;82:72T-76T; Gould K, Ornish D, Scherwitz L, et al. "Changes in Myocardial perfusion Abnormalities by Positron Emission Tomography After Long-term, Intense Risk Factor Modification." 1995. *Journal of the American Medical Association*;274,11:894-901; and Gould K, Ornish D, Kirkeeide, R, et al. "Improved Stenosis Geometry by Quantitative Coronary Arteriography After Vigorous Risk Factor Modification." 1992. *The American Journal of Cardiology*; 69:845-853. Also see: The Bravewell Collaborative, *The Efficacy and Cost Effectiveness of Integrative Medicine: A Review of the Medical and Corporate Literature* (Minneapolis, MN: The Bravewell Collaborative; 2011), 8-10. [http://www.bravewell.org/content/IM\\_E\\_CE\\_Final.pdf](http://www.bravewell.org/content/IM_E_CE_Final.pdf) (accessed September 23, 2011).

<sup>34</sup> The Bravewell Collaborative, *The Efficacy and Cost Effectiveness of Integrative Medicine*, 2-4, 7-8, 9-10.

<sup>35</sup> The Bravewell Collaborative, *The Efficacy and Cost Effectiveness of Integrative Medicine*, 4-5, 8, 10.

<sup>36</sup> IMS Institute for Healthcare Informatics, "The Use of Medicines in the United States: Review of 2011" (Danbury, CT: IMS Institute for Healthcare Informatics; 2012). [http://www.imshealth.com/deployedfiles/ims/Global/Content/Insights/IMS%20Institute%20for%20Healthcare%20Informatics/IHII\\_Medicines\\_in\\_U.S\\_Report\\_2011.pdf](http://www.imshealth.com/deployedfiles/ims/Global/Content/Insights/IMS%20Institute%20for%20Healthcare%20Informatics/IHII_Medicines_in_U.S_Report_2011.pdf) (accessed April 4, 2012). This includes: Lipitor (atorvastatin), Crestor, Vytorin and Zetia, and Zocor (simvastatin). (Use of generic name indicates that data include generic prescription data.) Average cost per patient is approximately \$1,000 per year (cost of \$15B / number of patients 15M).

<sup>37</sup> Data from the Defense Health Cost Assessment and Program Evaluation (DHCAPE), received April 25, 2012. Cost per patient per year is assumed at \$500 (vs. \$1,000 nationwide) to account for preferred pricing negotiated by the DoD Pharmacoconomics Committee.

<sup>38</sup> The Bravewell Collaborative, *The Efficacy and Cost Effectiveness of Integrative Medicine*, 4.

<sup>39</sup> Data from DHCAPE, received April 25, 2012. There were 1,211 procedures performed in medical treatment facilities (direct care) (6.2% of total), and 18,238 procedures performed under purchased care (i.e., in civilian facilities) (93.7% of total). Assuming the same ratio in the general population of 3:1 of angioplasty to bypass procedures, and applying the

same costs, gives a total of \$484,950,466 for coronary bypass surgery, and \$705,996,213 for angioplasties.

<sup>40</sup> “Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents: Summary Report.” *Pediatrics*. 2011;128:S5.

<sup>41</sup> Castelli WP. “Lipids, risk factors and ischaemic heart disease.” *Atherosclerosis* 124 Suppl. (1996) S1-S9.

<sup>42</sup> U.S. Food and Drug Administration. “FDA Drug Safety Communication: Important safety label changes to cholesterol-lowering statin drugs” (Silver Spring, MD: U.S. Food and Drug Administration; February 28, 2012).

<http://www.fda.gov/Drugs/DrugSafety/ucm293101.htm> (accessed April 20, 2012).

<sup>43</sup> Culver AL, Ockene, IS, Balasubramanian, R. 2012. “Statin Use and Risk of Diabetes Mellitus in Postmenopausal Women in the Women's Health Initiative.” *Arch Int Med*. 172(2):144-152.

<sup>44</sup> The Number Needed to Treat (NNT) for statin medications varies, depending on the patient population. In patients with established coronary artery disease, the NNT to prevent a heart attack is 16-23; to prevent death, the NNT is 48 (all numbers for a five-year treatment period). But in the general population, without heart disease, the NNT is 75-250 to prevent a heart attack or stroke, and 500+ to prevent death or serious medical condition. See: Weil, *Why Our Health Matters*, 165-66; “The Statin Lottery: Number Needed to Treat Statistic,” <http://pharmamktng.blogspot.com/2008/01/statin-lottery-numer-needed-to-treat.html> (accessed May 18, 2012); and Thompson A, Temple NJ, “The case for statins: has it really been made?” *J R Soc Med* 2004;97:461-464. For a discussion of the NNT, see Cook RJ, Sackett DL. “The Number Needed to Treat: A Clinically Useful Measure of Treatment Effect.” *The British Medical Journal* 1995;310(6977):452-454.

<sup>45</sup> Sanmuganathan PS, Ghahramani P, Jackson PR, Wallis EJ, Ramsay LE. “Aspirin for primary prevention of coronary heart disease: safety and absolute benefit related to coronary risk derived from meta-analysis of randomised trials.” *Heart*. 2001 Mar;85(3):265-71.

<sup>46</sup> See: Ornish, D, Scherwitz, L, Billings, J, et al., “Intensive Lifestyle Changes for Reversal of Coronary Heart Disease,” *JAMA*. 1998;280:2001-2007; and, Ornish, D, Weidner G, Fair W, et al., “Intensive Lifestyle Changes May Affect the Progression of Prostate Cancer,” *Journal of Urology*. 2005;174:1065-1070.

<sup>47</sup> Ornish, D for the Multicenter Lifestyle Demonstration Project Research Group. “Avoiding Revascularization with Lifestyle Changes: The Multicenter Lifestyle Demonstration Project.” *American Journal of Cardiology*. 1998;82:72T-76T

<sup>48</sup> The Bravewell Collaborative, *The Efficacy and Cost Effectiveness of Integrative Medicine*, 5.

<sup>49</sup> See: Koertge, J, Weidner G, Ornish, D et al. “Improvement in Medical Risk Factors and Quality of Life in Women and Men with Coronary Artery Disease in the Multicenter Lifestyle Demonstration Project,” *American Journal of Cardiology*, 2003;91:1316-1322 Pischke C, Scherwitz L, Weidner G, Ornish D.; “Long-Term Effects of Lifestyle Changes on Well-Being and

Cardiac Variables Among Coronary Heart Disease Patients," *Health Psychology*; 2008;27,5:584-592; and Govil S, Weidner G, Merritt-Worden T, Ornish, D. "Socioeconomic Status and Improvements in Lifestyle, Coronary Risk Factors, and Quality of Life: The Multisite Cardiac Lifestyle Intervention Program," *American Journal of Public Health*. 2009;99:1263-1270.

<sup>50</sup> The Bravewell Collaborative, *The Efficacy and Cost Effectiveness of Integrative Medicine*, 9.

<sup>51</sup> Weil, *Why Our Health Matters*, 210-219 (esp. pg. 216ff).

<sup>52</sup> Gruzelier J, Clow A, Evans P, Lazar I, Walker L. "Mind-Body Influences on Immunity: Lateralized Control, Stress, Individual Difference Predictors, and Prophylaxis." *Ann NY Acad Sci* 1998 Jun 30;851():487-94.

<sup>53</sup> See Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, "Mind-Body Skills for Regulating the Autonomic Nervous System" (Arlington, VA: Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury; 2011). <http://www.dcoe.health.mil/Content/Navigation/Documents/Mind-Body%20Skills%20for%20Regulating%20the%20Autonomic%20Nervous%20System.pdf> (accessed March 23, 2012). Also see: Dusek JA, Otu HH, Wohlhuetter AL, Bhasin M, Zerbini LF, et al. (2008) "Genomic Counter-Stress Changes Induces by the Relaxation Response." *PLoS ONE* 3(7):e2576. Doi:10.1371/journal.pone.0002576. And: Stoller C C, Greuel J H, Cimini L S, Fowler M S, Koomar J A. (2102) "Effects of Sensory-enhanced Yoga on Symptoms of Combat Stress in Deployed Military Personnel." *Amer Jour of Occup Ther*, 69,59-68.

<sup>54</sup> Andrew Weil, *Why Our Health Matters*, 25-7.

<sup>55</sup> The University of Arizona's Integrative Medicine in Residency Program is currently compiling data; see Leibsohn P, et al. "Integrative Medicine in Residency Education: Developing Competency Through Online Curriculum Training." *J Grad Med Educ* 2012;4(10):76-82. However, it will take another two years or so to compile data, and then evaluate it. Patricia Leibsohn, PhD, e-mail message to author, April 16, 2012.

<sup>56</sup> Ornish D. "Statins and the Soul of Medicine." 2002. *American Journal of Cardiology*;89:1286-1290.

<sup>57</sup> Weil, *Why Our Health Matters*, 86-8.

<sup>58</sup> Andrew Weil, MD, *Spontaneous Healing: How to Discover and Enhance Your Body's Natural Ability to Heal Itself*, (New York: Alfred A. Knopf, Inc; 1995), 71-85; and Weil, *Why Our Health Matters*, 179-82.

<sup>59</sup> Weil, *Spontaneous Healing*, 3, 6-7, 2024, 40-44, 54-8, 68-70, 86-7, 104-06, 115-125.

<sup>60</sup> Veatch, Robert M. 1972. "Models for Ethical Practice in a Revolutionary Age." *Hastings Center Report*, 2:3;5-7. As quoted in: Thomas M. Garrett, Harold W. Baillie, and Rosellen M. Garrett, *Health Care Ethics: Principles and Problems*, 4<sup>th</sup> ed. (Upper Saddle River, NJ: Prentice-Hall, Inc; 2001), 22-24.

<sup>61</sup> See Garrett et al, *Health Care Ethics*, 172-181.

<sup>62</sup> Gupta, I. Gupta, V. Parihar, A. Gupta, S. Ludtke, R. Safayhi, H. Ammon, H P. “Effects of Boswellia serrata gum resin in patients with bronchial asthma: results of a double-blind, placebo-controlled, 6-week clinical study.” *European Journal of Medical Research*. 3(11):511-4, 1998 Nov 17.

<sup>63</sup> Andrew Weil, MD, *Natural Health, Natural Medicine*, Rev. Ed. (Boston: Houghton Mifflin Co.; 2004), 218.

<sup>64</sup> Proverbs 23:7 (American Standard Version).

<sup>65</sup> Weil, *Spontaneous Healing*, 59-67.

<sup>66</sup> William Shakespeare, *Hamlet*, I.v.166-67.

<sup>67</sup> “When Congress authorized the USPSTF, it required the Department of Health and Human Services (HHS) to support the Task Force’s work. The 1998 Public Health Service Act and the 2010 Patient Protection and Affordable Care Act instruct HHS’ Agency for Healthcare Research and Quality (AHRQ) to provide administrative, research, technical, and communication support to the Task Force. As part of this support, AHRQ helps with day-to-day operations, coordinates the production of evidence reports, ensures consistent use of Task Force methods, and helps disseminate Task Force materials and recommendations. The Director of AHRQ also appoints new USPSTF members, with guidance from the Chair of the Task Force. While AHRQ staff supports the Task Force, it is important to note that the Task Force is an independent body, and its work does not require AHRQ or HHS approval.” <http://www.ahrq.gov/clinic/uspstfix.htm> (accessed May 3, 2012).

<sup>68</sup> Yusuf S, Hawken S, Ounpuu S, et al. “Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study.” *The Lancet* 2004;364:937-52.

<sup>69</sup> Ornish D, Weidner G, Fair W, et al., “Intensive Lifestyle Changes May Affect the Progression of Prostate Cancer,” *Journal of Urology*. 2005;174:1065-1070. And see: Ornish D, Magbanua MJ, Weidner G, et al. “Changes in prostate gene expression in men undergoing an intensive nutrition and lifestyle intervention.” (2008) *Proc Natl Acad Sci*;105(24):8369-8374. But both articles note that further studies (including randomized clinical controlled studies) and long-term follow-up are warranted to confirm these findings and determine their value as preventive therapies.

<sup>70</sup> Dr. William Li, “Angiogenesis and Diet,” February 2010; video available at <http://www.angio.org/understanding/diet.php> . Accessed on May 4, 2012. Also, the Ornish Spectrum Program may have anti-angiogenesis properties, but the research is not yet published; Dr. Dean Ornish, Letter to Advisory Group on Prevention, Health Promotion, and Integrative and Public Health, April 8, 2012; <http://www.healthcare.gov/prevention/nphpphc/advisorygrp/preventive-medicine-research-institute-ornish.pdf> (accessed May 26, 2012).

<sup>71</sup> U.S. Department of Defense. Assistant Secretary of Defense for Health Affairs. “Periodic Health Assessment Policy for Active Duty and Selected Reserve Members.” HA

Policy 06-006; 16 February 2006.

[http://www.health.mil/About\\_MHS/HA\\_Policies\\_Guidelines.aspx?policyYear=2006](http://www.health.mil/About_MHS/HA_Policies_Guidelines.aspx?policyYear=2006) (accessed 21 September 2011).

<sup>72</sup> For a further discussion of the possible ethical dilemma see Lichtenberg P, Heresco-Levy U, Nitzan U. "The ethics of the placebo in clinical practice," *Journal of Medical Ethics* 2004;30:551-554.

<sup>73</sup> Akobeng AK. "Understanding randomised controlled trials." *Arch Dis Child* 2005;90:840-844.

<sup>74</sup> Ibid.

<sup>75</sup> For a fuller discussion of this topic see IOM, *CAM in the U.S.*, 2005, 103-111.

<sup>76</sup> Weil, *Why Our Health Matters*, 45.

<sup>77</sup> The AMEDD has 159,541 total employees, 34 major facilities and over 425 other facilities, and serves a beneficiary pool of 3.97 million; see U.S. Army Medical Command, "U.S. Army MEDCOM Command Briefing," 02 May 2012 (via e-mail from COL Brenda Ellison, Deputy Corps Chief for Strategic Initiatives, SP Corps, U.S. Army Office of the Surgeon General, Falls Church, VA). The next-largest health care organizations in the U.S. are the Department of Veterans Affairs, with 126,584 employees and 147 hospitals; and HCA, Inc (Nashville, TN) with 88,245 employees and 118 hospitals; see Billian's Health Data, Inc, "Healthcare Systems by Full Time Employees," <http://www.billian'shealthdata.com/news/vitals/infocus/HealthcareSystems-FTEs.html> (accessed May 7, 2012). It is reasonable to assume that the MHS totals are in the range of 2-3x that for the AMEDD.

<sup>78</sup> LTG Eric B. Schoomaker, U.S. Army Surgeon General, "Operation Order 10-76, USAMEDCOM Comprehensive Pain Management Campaign Plan," Fort Sam Houston, TX, U.S. Army Medical Command, September 21, 2010; 16.

<sup>79</sup> Dr. Victoria Maizes, University of Arizona Fellowship Program in Integrative Medicine, interview by author, Tucson, AZ, February 20, 2012. The website for the American Board for Physician Specialties does have a page for Integrative Medicine, but it simply states "Page under construction". <http://abpsus.org/integrative-medicine> (accessed March 23, 2012).

<sup>80</sup> The Samueli Institute, "Information on the Samueli Institute" (Alexandria, VA: The Samueli Institute; n.d. but NET March 14, 2011), 1. Their website is: <http://www.siib.org/> , but this document was sent to the author via e-mail by Ms. Ladonna Johnson, a Program Administrative Coordinator at Samueli Institute on February 3, 2012.

<sup>81</sup> Ibid, 4.

<sup>82</sup> U.S. Army Medical Command, "Army Patient Centered Medical Home: FAQ Sheet," available at: <https://www.us.army.mil/suite/page/661214> (accessed May 10, 2012). The principle of getting into the "White Space" is key to PCMH. Also see: LTG Patricia Horoho, The Surgeon General, "Commander's Thoughts," (Falls Church, VA: Office of the Surgeon General, U.S. Army; February 24, 2012), and LTG Horoho's address at the 2012 Military Health System

Conference, at:

<http://hosted.mediasite.com/mediasite/SilverlightPlayer/Default.aspx?peid=156c41b586df4ffea9a3a9955862925d1d>.

<sup>83</sup> This concept was proposed by the author to the Joint Preventive Medicine Policy Group (JPMPG) at their meeting in Falls Church, VA (Skyline 4, Room 403) on January 10, 2012 by the author, where it received a less-than-enthusiastic reception.

<sup>84</sup> There is already significant variation among the Services in their execution of the PHA, such that this would probably not make a difference in how the other Services conduct their PHA.

<sup>85</sup> "Accessing Health Topics on the Internet," Pew Research Foundation (Washington, DC: February 1, 2011)  
[http://pewinternet.org/~media//Files/Reports/2011/PIP\\_HealthTopics.pdf](http://pewinternet.org/~media//Files/Reports/2011/PIP_HealthTopics.pdf) (accessed May 26, 2012).

<sup>86</sup> U.S. Army Comprehensive Soldier Fitness website, <http://csf.army.mil/index.html>, (accessed May 10, 2012).

<sup>87</sup> U.S. Department of Defense, Uniformed Services University Bulletin (School of Medicine) (Bethesda, MD: Uniformed Services University, February 28, 2012), 10.  
<http://www.usuhs.mil/adm/catalog/SchoolofMedicine.pdf> (accessed May 10, 2012).

<sup>88</sup> U.S. Department of the Army, *U.S. Army Health Professions Scholarship, Financial Assistance, and Active Duty Health Professions Loan Repayment Programs*, Army Regulation 601-141 (Washington, DC: U.S. Department of the Army, September 19, 2006), 3-4.

<sup>89</sup> USUHS faculty, interview with the author, Bethesda, MD, January 17, 2012.

<sup>90</sup> The author, through the generous introduction of Mr. Hershell Wolfe (DASA-ESOH), has already had several meetings with select members of the USUHS about this topic. While they are planning to add IM training as an elective during the clerkships, a decision has not been reached about joining CAHCIM.

<sup>91</sup> Dr. Tieraona Low Dog, University of Arizona Fellowship Program in Integrative Medicine, e-mail message to author, March 4, 2012; as follow-up to interview by author, Tucson, AZ, February 20, 2012.

<sup>92</sup> LTC John Balser, PA-C, Chief, Physician Assistant Section and Assistant Chief of the Army Medical Specialist Corps, U.S. Army Medical Department, telephone interview by author, January 9, 2012.

<sup>93</sup> Dr. Victoria Maizes, University of Arizona Fellowship Program in Integrative Medicine, interview by author, Tucson, AZ, February 20, 2012. Also see:  
<http://www.oup.com/us/catalog/general/series/WeillIntegrativeMedicineLibrary/?view=usa&sf=all>

(accessed March 8, 2012).

<sup>94</sup> AHLTA stands for “Armed Forces Health Longitudinal Technology Application.” <http://www.health.mil/MHSCIO/imitstratplan/media/acronyms.aspx> (accessed May 29, 2012).

<sup>95</sup> Quote from Dr. Leslie Cho, The Cleveland Clinic; as seen in *Escape Fire: The Fight to Rescue American Health Care*; Matthew Heineman and Susan Froemke, producers. The film premiered at the Sundance Film Festival 2012, [http://filmguide.sundance.org/film/120104/escape\\_fire\\_the\\_fight\\_to\\_rescue\\_american\\_healthcare](http://filmguide.sundance.org/film/120104/escape_fire_the_fight_to_rescue_american_healthcare). Viewed by the author on 17 February 2012 at the Preventive Medicine Research Institute, Sausalito, CA.

<sup>96</sup> Institute of Medicine, The National Academies, *Integrative Medicine and the Health of the Public: A Summary of the February 2009 Summit*, (Washington, DC: National Academies Press; 2009), 72. [http://www.nap.edu/catalog.php?record\\_id=12668](http://www.nap.edu/catalog.php?record_id=12668) (accessed November 2, 2011).

<sup>97</sup> IOM, *CAM in the U.S.*, 2005; 217.

<sup>98</sup> Ibid.

<sup>99</sup> U.S. Department of the Army, *Medical, Dental and Veterinary Care*, Army Regulation 40-3 (Washington, DC: U.S. Department of the Army, Rapid Action Revision Issued March 12, 2010), 95.

<sup>100</sup> COL Kevin Galloway, AN, USA, Chief of Staff, OTSG Pain Management Work Group, interview by author, Alexandria, VA, February 7, 2012.

<sup>101</sup> Dr. Dean Ornish, telephone conversation with author, February 14, 2012; and Dr. Andrew Weil, interview by author, Tucson, AZ, February 20, 2012.

<sup>102</sup> Sources for the following discussion of PCMH: LTG Eric B. Schoomaker, U.S. Army Surgeon General, “Operation Order 11-20 (Army Patient-Centered Medical Home),” Fort Sam Houston, TX, U.S. Army Medical Command, January 2011; information available at the PCMH page on AKO, <https://www.us.army.mil/suite/page/661214>; and the author’s visit to the Andrew Rader U.S. Army Health Clinic, Joint Base Myer-Henderson Hall, VA, on May 22, 2012 to observe PCMH first-hand.

<sup>103</sup> “The National Heart, Lung, and Blood Institute (NHLBI) launched the National Cholesterol Education Program (NCEP) in November 1985. The goal of the NCEP is to contribute to reducing illness and death from coronary heart disease (CHD) in the United States by reducing the percent of Americans with high blood cholesterol. Through educational efforts directed at health professionals and the public, the NCEP aims to raise awareness and understanding about high blood cholesterol as a risk factor for CHD and the benefits of lowering cholesterol levels as a means of preventing CHD.” <http://www.nhlbi.nih.gov/about/ncep/> (accessed May 30, 2012).

<sup>104</sup> For example, the NCEP TLC diet allows up to 30% of daily calories from fats; the Ornish Spectrum Program restricts this to 10%.

<sup>105</sup> As stated: “We concur with the World Health Organization’s (WHO) definition of health, ‘a state of complete physical, mental, and social well-being and not merely the absence

of disease' (<http://www.who.int/about/definition/en/print.html> ). LTC Wayne B. Jonas, MC, USA (Ret); COL Francis O'Connor, MC, USA; Patricia Deuster, PhD, MPH; et al. "Why Total Force Fitness?" Military Medicine, 175,8:9, 2010.

<sup>106</sup> Center for Medicare and Medicaid Services, U.S. Department of Health and Human Services. "CMS Manual System, Pub 100-03 Medicare National Coverage Determinations, Transmittal 125, Change Request 7113" (Washington, DC: Center for Medicare and Medicaid Services, U.S. Department of Health and Human Services; September 24, 2010). <http://www.cms.gov/transmittals/downloads/R125NCD.pdf> (accessed May 10, 2012).

<sup>107</sup> Ornish, D, Weidner G, Fair W, et al., "Intensive Lifestyle Changes May Affect the Progression of Prostate Cancer," *Journal of Urology*. 2005;174:1065-1070.

<sup>108</sup> Dr. Victoria Maizes, University of Arizona Center for Integrative Medicine, interview by author, Tucson, AZ, February 20, 2012; and <http://integrativemedicine.arizona.edu/phxclinic/impact.html> (accessed May 30, 2012).

<sup>109</sup> Andrew Weil, *Why Our Health Matters*, 86-8.

<sup>110</sup> Institute of Medicine, *Integrative Medicine and the Health of the Public*, 2009;" 72.

